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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/634,256      | 08/08/2000  | paul C. Allen        | 4926/ETEC           | 4935             |

32588 7590 10/09/2002

APPLIED MATERIALS, INC.  
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SANTA CLARA, CA 95050

[REDACTED] EXAMINER

FERNANDEZ, KALIMAH

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2881

DATE MAILED: 10/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/634,258

Applicant(s)

ALLEN, PAUL C.

Examiner

Kalimah Fernandez

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 16 September 2002.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-4,6-10,12-16,18-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6-10,12-16, 18-22 and 24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)      4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)      5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.      6) Other: \_\_\_\_\_ .

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1,7,13,19, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat No 6,057,639 issued to May et al.
3. May et al discloses a device for generating a plurality of electrons having a source of radiation (col.2, lines 1-5).
4. May et al discloses a spatial light modulator (40) (col.6, lines 7-11).
5. May et al discloses said modulator (40) having a position so as to modulate said radiation emanating from said source of radiation (col.6, lines 7-10).
6. May et al discloses a photocathode (i.e. photoemitter) (5) (col.3, lines 23-26).
7. May et al discloses said photoemitter having a position so as to receive said

Art Unit: 2881

modulated radiation wherein said photocathode produces a plurality of electron beams under impact by said modulated radiation (col.3, lines 20-22; col.4, lines 23-49).

8. As per claim 7, May et al discloses the use of his apparatus for electron lithography (col.2, lines 14-32).

9. May et al discloses an electron beam optical column having a position so as to receive said plurality of electron beams and to direct said plurality of electrons beams onto a target (col.6, lines 6-38; figs. 6-7).

10. As per claims 13 and 19, the limitations are discussed above (also see figs. 6-7).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4,10, 16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No. 6,057,639 issued to May et al in view of US Pat No 4,196,257 issued to Engstrom et al.

13. May et al discloses the claimed invention except for "said photocathode is cesium telluride".

14. However, Engstrom et al teaches the typical use of cesium telluride photocathodes (col.1, lines 5-11; col.1, lines 55-64).

15. It would have been obvious to an ordinary artisan to incorporate the use of a

cesium telluride photocathode into May et al, since Engstrom et al teaches high sensitivity (col.2, lines 59-62).

16. Claims 2-3,8-9,14-15, and 20-21 rejected under 35 U.S.C. 103(a) as being unpatentable over May et al as applied to claims 1,7,13 and 19 above, and further in view of US Pat No 5,395,738 issued to Brandes et al.

17. Baum teaches the claimed invention except for UV radiation.

18. Brandes et al the use of a UV radiation source (col.1, lines 11-15).

19. It would have been obvious to an ordinary artisan to incorporate the teachings of Brandes et al into May et al since Brandes et al teaches improved performance (col.3, lines 9-60).

20. As per claims 3,9,15 and 21, Brandes et al discloses the generation of UV radiation, which is conventional produced using a mercury arc lamp or the like.

21. Claims 6,12,18, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al as applied to claim 1,7, and 13 above, and further in view of US Pat No. 5,691,836 issued to Clark.

22. May et al discloses the claimed invention except for a micromirror array.

23. However, Clark teaches a spatial light modulator being a micro-mirror array (col.1, lines 13-35).

24. It would have been obvious to an ordinary artisan to incorporate a micro-mirror spatial light modulator into May since Clark teaches the generally available knowledge that a micro-mirror modulator is common and expected in the art (col.1, lines 24-35).

### *Conclusion*

25. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Pat No. 4,749,906 issued to Tran et al; US Pat No. 5,684,360 issued to Baum et al; US Pat No. 6,005,247 issued to Baum; US Pat No. US Pat No. 4,460,831 issued to Oettinger et al; US Pat No. 4,618,217 issued to Armitage; US Pat No. 5,208,696 issued to Kobayashi et al; US Pat No. 5,173,954 issued to Kato et al; US Pat No. 4,906,894 issued to Miyawaki et al; US Pat No. 6,376,985 issued to Lee et al and US Pat No. 6,429,443 issued to Mankos et al.
26. Baum ('247) discloses an electron beam microscope having a means for generating a plurality of electron beams (110).
27. Namely, Baum discloses a source of radiation (60) (see col.5, lines 60-67); optical modulators (222,224,...,230) (col.6, lines 44-49); and a photocathode (50) (see col.5, lines 23-38).
28. In regards to Miyawaki et al discloses a source of radiation (col.5, lines 38-41; col.6, lines 50-66).
29. Miyawaki et al discloses modulator (col.6, lines 50-66).
30. Miyawaki et al discloses a photocathode (col.1, lines 10-15).
31. Miyawaki et al discloses the generation of a plurality of electron beams (col.2, lines 54-67).
32. Finally, Mankos et al discloses the general available knowledge in the art of cesium-tellurium photocathode (col.3, lines 45-60) and further discloses mirrors in the VCSEL device for production of modulated light (col.2, lines 15-40).

33. In addition, "Deformable-mirror spatial light modulators" authored by Hornbeck, Proc. SPIE-Int (1990), 1150, page 86-102.

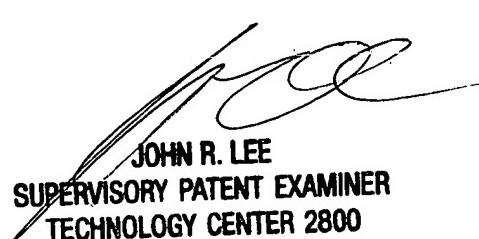
34. Hornbeck discloses the state of the art in regards to spatial light modulator being mircomirror (see page 86, col. 1, lines 1-18).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 703-305-6310. The examiner can normally be reached on Mon-Thrus between 8:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on 703-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7721 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Kf  
September 30, 2002

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800